

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE
in its capacity as elected Office

Date of mailing (day/month/year) 31 January 2001 (31.01.01)	
International application No. PCT/AU00/00646	Applicant's or agent's file reference 28359WOP00
International filing date (day/month/year) 08 June 2000 (08.06.00)	Priority date (day/month/year) 09 June 1999 (09.06.99)
Applicant BYRNE, Laurence, Michael	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

19 December 2000 (19.12.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Jean-Marie McAdams Telephone No.: (41-22) 338.83.38
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which compress the refuse directly into the container on the truck thereby removing the intermediate step of loading the compressed refuse into the heavy haulage truck. However in order to withstand the forces and pressures generated by the compressor, the container on the truck must be fabricated from relatively thick steel. This significantly
5 increases the weight of the container and therefore to keep the load within the maximum permissible limit for public road usage, the containers must be relatively small. Accordingly, the volume of refuse transported is compromised. Large containers can be used if the trucks do not have to travel over public roads however this is not practical when the land fill site is a large distance from the transfer station.

10 One attempt to address this involves transferring large containers of compressed refuse from the back of heavy haulage trucks onto rail cars which have much greater weight limits. The container can then be transported by rail to a point at or near the land fill site where it can be loaded back onto a heavy haulage truck and emptied into the land fill.

15 This increases the volume of refuse in each container and takes the heavy haulage trucks off public roads, however transferring the containers from the trucks to the rail cars and then from the rail cars back to the trucks is time consuming and labour intensive.

SUMMARY OF THE INVENTION

20 It is an object of the present invention to overcome or ameliorate one of the problems of the prior art or at least provide a useful alternative.

Accordingly, in a first aspect the present invention provides a rail car including:

a chassis adapted to travel on a track;

a longitudinally extending container for compacted refuse material, the container having a closeable opening for loading or unloading material through at least one longitudinal end thereof; and

means to enable interconnected displacement of the container relative to the
5 chassis to permit in situ loading via the closeable opening.

In a second aspect the present invention provides a materials handling system including:

a rail car having a chassis adapted to travel on a track;

a longitudinally extending container for compacted material, the container having a
10 closeable opening for loading or unloading material through at least one longitudinal end thereof, and means to enable interconnected displacement of the container relative to the chassis to permit in situ loading via the closeable opening;

a loading means at a materials collection point for loading material into the container through the opening;

15 a track for the rail car extending from the collection point to a remote distribution point; and

an unloading means at the distribution point for unloading material from the container through the opening; wherein,

the container is displaced relative to the chassis to operatively engage the loading
20 means and again displaced when unloading the material.

In a third aspect the present invention provides a method of transporting material between a collection point and a distribution point by rail using a rail car having:

a chassis adapted to travel on a track;

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A rail car including:
 - a chassis adapted to travel on a track;
 - a longitudinally extending container having a closeable opening for loading or
 - 5 unloading material through at least one longitudinal end thereof; and
 - means to enable interconnected displacement of the container relative to the chassis to permit in situ loading via the closeable opening.
2. A rail car according to claim 1 wherein the means to enable interconnected displacement of the container relative to the chassis is a bearing between the container
- 10 and chassis such that the container is selectively rotatable relative to the chassis.
3. A rail car according to claim 1 or claim 2 wherein both of the longitudinal ends have a closeable opening for loading or unloading material.
4. A materials handling system including:
 - a rail car having a chassis adapted to travel on a track;
 - 15 a longitudinally extending container for compacted material, the container having a closeable opening for loading or unloading material through at least one longitudinal end thereof, and means to enable interconnected displacement of the container relative to the chassis to permit in situ loading via the closeable opening;
 - a loading means at a materials collection point for loading material into the
 - 20 container through the opening;
 - a track for the rail car extending from the collection point to a remote distribution point; and

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 01 AUG 2001

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Applicant's or agent's file reference 28359WOP00 KWB/sbh	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).	
International Application No. PCT/AU00/00646	International Filing Date (day/month/year) 8 June 2000	Priority Date (day/month/year) 9 June 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ B61D 3/04, 3/16, 47/00; B65F 9/00; B65G 63/02, 65/00		
Applicant BYRNE, Laurence Michael		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.																
2.	This REPORT consists of a total of 3 sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of 3 sheet(s).																
3.	This report contains indications relating to the following items: <table border="0"> <tr> <td>I</td> <td><input checked="" type="checkbox"/> Basis of the report</td> </tr> <tr> <td>II</td> <td><input type="checkbox"/> Priority</td> </tr> <tr> <td>III</td> <td><input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td>IV</td> <td><input type="checkbox"/> Lack of unity of invention</td> </tr> <tr> <td>V</td> <td><input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td>VI</td> <td><input type="checkbox"/> Certain documents cited</td> </tr> <tr> <td>VII</td> <td><input type="checkbox"/> Certain defects in the international application</td> </tr> <tr> <td>VIII</td> <td><input type="checkbox"/> Certain observations on the international application</td> </tr> </table>	I	<input checked="" type="checkbox"/> Basis of the report	II	<input type="checkbox"/> Priority	III	<input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	IV	<input type="checkbox"/> Lack of unity of invention	V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	VI	<input type="checkbox"/> Certain documents cited	VII	<input type="checkbox"/> Certain defects in the international application	VIII	<input type="checkbox"/> Certain observations on the international application
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VIII	<input type="checkbox"/> Certain observations on the international application																

Date of submission of the demand 19 December 2000	Date of completion of the report 24 July 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer D.R. LUM Telephone No. (02) 6283 2544

I. Basis of the report**1. With regard to the elements of the international application:***☐ the international application as originally filed.☒ the description, pages 1, 4-9, as originally filed,
pages , filed with the demand,
pages 2 & 3 , received on 28 May 2001 with the letter of 28 May 2001^{*}☒ the claims, pages 11-13, as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages 10, received on 28 May 2001 with the letter of 28 May 2001☒ the drawings, pages 1/4-4/4 as originally filed,
pages , filed with the demand,
pages , received on with the letter of☐ the sequence listing part of the description:

pages , as originally filed

pages , filed with the demand

pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**☐ contained in the international application in written form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished**4. ☐ The amendments have resulted in the cancellation of:**☐ the description, pages☐ the claims, Nos.☐ the drawings, sheets/fig.**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).****

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-19	YES
	Claims	NO
Inventive step (IS)	Claims 1-19	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-19	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

Claims 1-19 meet the criteria set forth in PCT Article 33(2)-(4) for novelty, inventive step and industrial applicability. The prior art published before the priority date does not disclose that the container is interconnectedly displaced with respect to the chassis when it is loaded with waste material and the waste compressed whilst the container is on the rail chassis.

- 2 -

which compress the refuse directly into the container on the truck thereby removing the intermediate step of loading the compressed refuse into the heavy haulage truck. However in order to withstand the forces and pressures generated by the compressor, the container on the truck must be fabricated from relatively thick steel. This significantly
5 increases the weight of the container and therefore to keep the load within the maximum permissible limit for public road usage, the containers must be relatively small. Accordingly, the volume of refuse transported is compromised. Large containers can be used if the trucks do not have to travel over public roads however this is not practical when the land fill site is a large distance from the transfer station.

10 One attempt to address this involves transferring large containers of compressed refuse from the back of heavy haulage trucks onto rail cars which have much greater weight limits. The container can then be transported by rail to a point at or near the land fill site where it can be loaded back onto a heavy haulage truck and emptied into the land fill.

15 This increases the volume of refuse in each container and takes the heavy haulage trucks off public roads, however transferring the containers from the trucks to the rail cars and then from the rail cars back to the trucks is time consuming and labour intensive.

SUMMARY OF THE INVENTION

20 It is an object of the present invention to overcome or ameliorate one of the problems of the prior art or at least provide a useful alternative.

Accordingly, in a first aspect the present invention provides a rail car including:

a chassis adapted to travel on a track;

a longitudinally extending container having a closeable opening for loading or unloading metropolitan waste material through at least one longitudinal end thereof;

means to enable interconnected displacement of the container relative to the chassis to permit loading via the closeable opening; and

5 the container being adapted to stably withstand the compression of the waste material within the container.

In a second aspect the present invention provides a materials handling system including:

a rail car having a chassis adapted to travel on a track;

10 a longitudinally extending container for compacted material, the container having a closeable opening for loading or unloading material through at least one longitudinal end thereof, and means to enable interconnected displacement of the container relative to the chassis to permit in situ loading via the closeable opening;

a loading means at a materials collection point for loading material into the
15 container through the opening;

a track for the rail car extending from the collection point to a remote distribution point; and

an unloading means at the distribution point for unloading material from the container through the opening; wherein,

20 the container is displaced relative to the chassis to operatively engage the loading means and again displaced when unloading the material.

In a third aspect the present invention provides a method of transporting material between a collection point and a distribution point by rail using a rail car having:

a chassis adapted to travel on a track;

- 10 -

CLAIMS:

1. A rail car including:
 - a chassis adapted to travel on a track;
 - a longitudinally extending container having a closeable opening for loading or
 - 5 unloading metropolitan waste material through at least one longitudinal end thereof;
 - means to enable interconnected displacement of the container relative to the chassis to permit loading via the closeable opening; and
 - the container being adapted to stably withstand the compression of the waste material within the container.
- 10 2. A rail car according to claim 1 wherein the means to enable interconnected displacement of the container relative to the chassis is a bearing between the container and chassis such that the container is selectively rotatable relative to the chassis.
3. A rail car according to claim 1 or claim 2 wherein both of the longitudinal ends have a closeable opening for loading or unloading waste material.
- 15 4. A materials handling system including:
 - a rail car having a chassis adapted to travel on a track;
 - a longitudinally extending container for compacted material, the container having a closeable opening for loading or unloading material through at least one longitudinal end thereof, and means to enable interconnected displacement of the container relative to the
 - 20 chassis to permit in situ loading via the closeable opening;
 - a loading means at a materials collection point for loading material into the container through the opening;
 - a track for the rail car extending from the collection point to a remote distribution point; and

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00646

A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: B61D 3/04, 3/16, 47/00; B65F 9/00; B65G 63/02, 65/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC AS ABOVE

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Derwent World Patent Index**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP516583 A (TUCHSCMID AG) 2 December 1992 See figure 1	1-3
X	EP325814 A (DE ARK B.V.) 2 August 1989 See figures 1 & 2	1-3
X	EP181676 A (DE ARK B.V.) 21 May 1986 See figures 1 & 2	1-3

☒ Further documents are listed in the continuation of Box C ☒ See patent family annex

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>		<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search

23 June 2000

Date of mailing of the international search report

05 JUL 2000

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00646

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE3042046 A (ALTVATER) 19 May 1982 Whole document	1-3
X	DE2624818 A (SCHWAB) 15 December 1977 See figures 2-4	
A	DE2411111 A (SEMAT FAHRZEUG-UND GERATE GmbH) 18 September 1975 Whole document	
A	AU 30665/95 A (BRIMBANK CITY COUNCIL et al) 28 March 1996 Whole document	

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00646

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
EP	516583	CS	9201581	FI	922416	PL	294683
EP	325814	AT	78766	NL	8800161	US	4880341
EP	181676	NL	8403496				
DE	3042046	NIL					
DE	2624818	NIL					
DE	2411111	CH	602472				
AU	30665/95	NIL					
END OF ANNEX							